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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF

NAOYA YAMATO, ET AL.

SERIAL NO: 10/073,226

FILED: FEBRUARY 13, 2002

FOR: GELLING AGENT FOR OIL

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: EXAMINER: KIM, V. Y.

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: GROUP ART UNIT: 1614

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DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes NAOYA YAMATO who deposes and states:

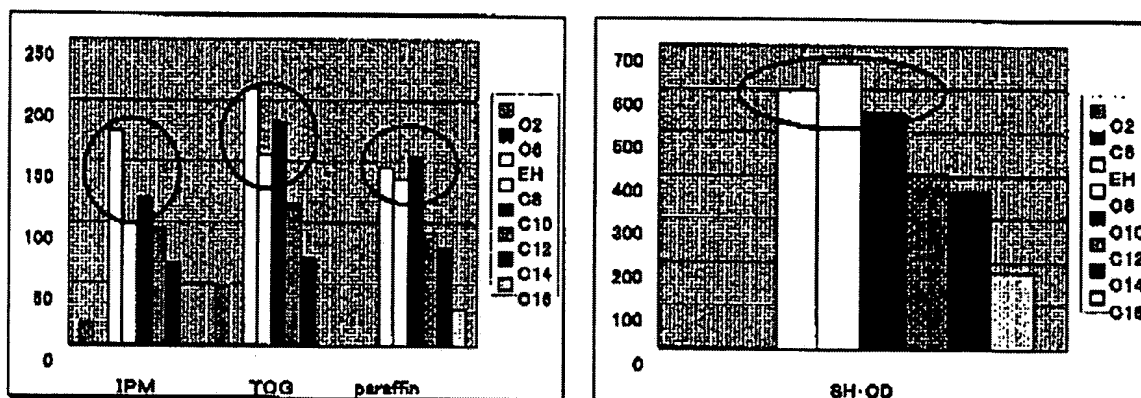
1. That I am an inventor of the above-identified application.
2. That I am a graduate of Waseda University, and received my Master degree in the field of Chemistry, in the year 1996.
3. That I have been employed by AJINOMOTO CO., INC., for 8 years as researcher in the field of Cosmetics.
4. That I understand the English language or, at least, that the contents of the Declaration were made clear to me prior to executing the same.
5. That not only do Hofrichter et al fail to explicitly name, suggest, or exemplify any species that falls within the scope of the present claims (i.e., wherein R<sup>3</sup> represents a hydrocarbon group having 7 to 10 carbon atoms). In fact, the preferred species listed by Hofrichter et al at column 4, line 52 to column 5, line 2 would actually lead the artisan away from the range of R<sup>3</sup> in the present claims. As such there can be no motivation to select or

obtain the claimed compounds (having  $R^3$  represents a hydrocarbon group having 7 to 10 carbon atoms) from the broad genus disclosed by Hofrichter et al. This is particularly true when the artisan inspects the preferred species of Hofrichter et al at column 4, line 52 to column 5, line 2 and the Examples, in which the position corresponding to  $R^3$  contains 11 carbon atoms or more. Moreover, based on the disclosure of Hofrichter et al the skilled artisan would have no means of envisioning the advantages flowing from the claimed invention as demonstrated in the specification of 10/073,226 and highlighted in the responses filed on November 25, 2003 and June 10, 2004.

To further emphasize the advantages provided by the claimed invention, the following experiments were performed, which clearly provide an unexpected advantageous effect that could not be envisioned from the art of record.

(A) Correlation between a length of the aryl chain of the acylamino acid dibutylamide and gel forming ability

Gel forming ability of several acylamino acid dibutylamide each having an acyl chain with different number of carbon atoms were tested by using isopropyl myristate (IPM), trioctanoic acid glyceride (TOG), liquid paraffin, and a mixed oil containing Cyclometicon and octyldodecanol (SH-OD). The results are shown in the following figures (in the figures, "EH" represents N-2-ethylhexanoylglutamic acid dibutylamide which is referred to as "Compound of Example 1" in the specification).



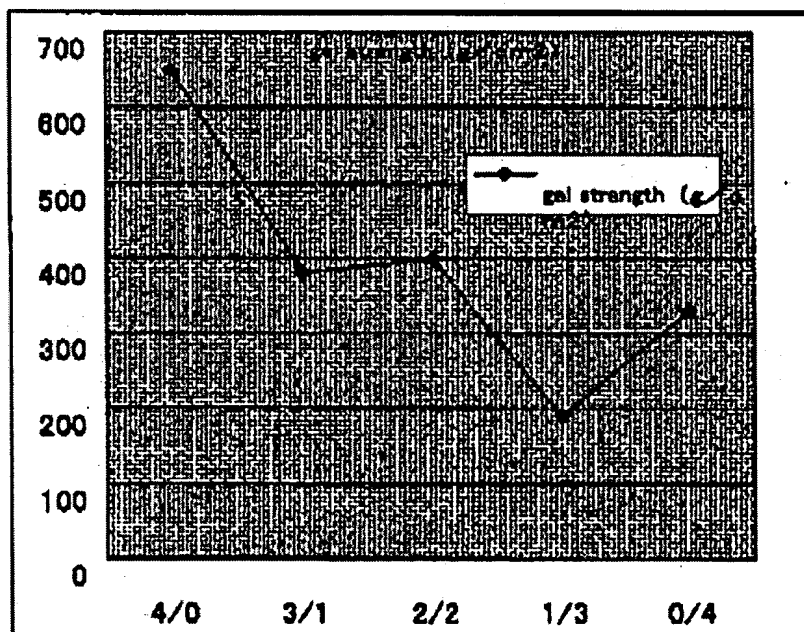
As can be understood from the above results, the aryl group of C8 to C10 gave superior gel forming ability to the aryl group of C6 or lower (almost no gel forming ability) and the aryl group of C12 or higher (low gel forming ability). As for silicone oil (such as exemplified by SH-OD containing "Cyclometicon") which is frequently used in the field of cosmetics, the aryl group of C8 to C10 gave specifically excellent results as compared to the other acyl group.

These results indicate that the aryl group of C8 to C10 specifically give higher gel forming ability than a higher lipophilic acyl group with longer aryl chain or than a shorter acyl group, and these results are quite surprising, because it would have been generally believed by one of ordinary skill in the art that a more lipophilic gelling agent would give a higher gel forming ability. It is also quite surprising that the acyl groups of C6 or less give only poor results. Further, EH, which has a branched acyl chain and exists as a mixture of two diastereomers, gave a superior result to a gelling agent having a straight acyl chain. This result is also very surprising because one of ordinary skill in the art would have believed that EH as a mixture of two diastereomer would only give poor gel forming ability due to the mixture of two different compounds.

In addition, U.S. Patent No. 5,591,424 described that "Particularly preferred are n-acyl glutamic acid amides and n-acyl glutamic acid esters corresponding to the following formula: ##STR2## wherein R.sub.1 is an alkyl, aryl, arylalkyl radical (branched, linear or cyclic), having from about 1 to about 26 carbon atoms; preferably, from about 6 to about 22 carbon atoms, more preferably, from about 12 to about 18 carbon atoms". Apparently, the inventors of the U.S. Patent consider that acyl groups having 12 to 18 carbon atoms are preferred. Accordingly, one of ordinary skill in the art would not have been motivated to chose the acyl group of C8 to C10 to obtain gelling agent of the present invention having excellent gel forming ability in view of the teaching of the U.S. patent.

(B) Synergistic effect of EH and N-Lauroyl-L-glutamic acid dibutylamide (GP-1)

As demonstrated in Examples 7 to 10, the mixing of EH with GP-1 gave synergistic effects in gel forming ability as well as in transparency.

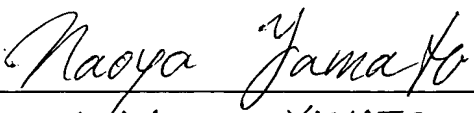


It is generally expected that a contamination of an exogenous substance in a gel would result in extensive break of gel network and significant reduction of gel forming ability of a

gelling agent. This phenomenon is observed in a mixed system containing EH and GP-1; however, as shown by the results shown in the figure, the mixture of a ratio around 2/2 (ratios from 3/1 to 1/3) gave practically sufficient gel forming ability (sufficient gel strength), and moreover, the appearance of the gelled oil formed by using the mixture in the above ratio was semitransparent or transparent. This result was very surprising because an ordinary mixed gelling agent generally fails to give a semitransparent or transparent gel due to a weakened gel strength.

6. I declare further that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

7. Further Declarant saith not.

  
Name: NAOYA YAMATO

Date Nov. 12, 2004